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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,548	04/14/2004	Daniel B. Roitman	10030531-1	6420

7590 03/09/2005

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EXAMINER	
YU, MELANIE J	

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,548	ROITMAN ET AL.	
	Examiner	Art Unit	
	Melanie Yu	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *10-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/14*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group I, claims 1-9, in the reply filed on February 16, 2005 is acknowledged. The traversal is on the ground(s) that the restriction requirement is unfair to the Applicant because it will require Applicant to file and bear the additional cost and time delay associated with filing additional divisional applications. This is not found persuasive because Applicant is entitled to only one invention per patent and pursuing more than one invention would require examiner to dilute time and resources required for prosecution of the application. Applicant also argues that the examination of two or more inventions can be made without "serious burden". Though the methods of groups I and II contain overlapping subject matter, the search for the method of group I would not encompass a search for the method of group II. The method of group I requires searching for forming a first detector complex electrochemically on a conductive substrate, which is not required for the search of group II. Examination of the method of group II requires a search for catalyzing the deposition of first target nanoparticles on the first target complex, which is not required for the search of group I. The inventions of groups I and II required different searches and are therefore patentably distinct.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 2 and 3 recite forming a first detector complex electrochemically in the preamble of the claims. Claim 1 recites the inclusion of a first target biomolecule, a first target nanoparticle and a first detector nanoparticle in the first detector complex. However, in the body of claims 2 and 3, there is no mention of a first detector nanoparticle and how it is formed with the first target biomolecule and the first target nanoparticle on the conductive substrate. Therefore, claims 2 and 3, lack essential steps, and it is unclear whether the electrochemical formation of a first detector complex is intended to include a first detector nanoparticle.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Natan (US 6,025,202).

Natan teaches a method comprising: providing a first target biomolecule, a first target nanoparticle, and a first detector nanoparticle (target biomolecule is the biotin/streptavidin complex, first target nanoparticle is the Au nanoparticle, col. 3, lines 3-21; first detector nanoparticle is disclosed in an alternate embodiment where Au nanoparticles are coated with Ag nanoparticles in order to reduce interparticle spacing, col. 9, line 63-col. 10, line 2); forming a

first detector complex electrochemically on a conductive substrate (col. 21, lines 9-14), wherein the first detector complex includes the first target biomolecule, the first target nanoparticle, and the first detector nanoparticle (col. 3, lines 3-21; col. 9, line 63-col. 10, line 2), wherein the first detector nanoparticle is disposed on the first target nanoparticle (deposition of Ag particle on Au particle, col. 9, line 63-col. 10, line 2), wherein the first target nanoparticle is disposed on the conductive substrate (conductive substrates; col. 9, lines 25-37); directing a laser at the first detector complex, wherein the interaction of the laser with the first detector complex produces a SERS signal specific for the first target biomolecule (col. 17, lines 64-67; col. 18, lines 11-13; col. 21, lines 29-36); and detecting the SERS signal (col. 18, lines 13-16; col. 21, lines 29-36).

With respect to claims 2, 3, 6 and 7, Natan teaches forming a first detector complex electrochemically comprising: forming a first target complex that includes the first target biomolecule and the first target nanoparticle (first target biomolecule is the biotin/streptavidin complex and first target nanoparticle is the Au particle; col. 3, lines 3-21); and disposing the first target complex onto the first conductive substrate (the first target biomolecule and Au particle are disposed on a substrate of glass or metal, col. 3, lines 3-6, which is disclosed as conductive, col. 9, lines 25-27). Natan also teaches the method of forming a first detector complex comprising: disposing the first target biomolecule onto the first conductive substrate (biotin disposed on substrate, col. 3, lines 3-6, which is disclosed as conductive, col. 9, lines 25-27); contacting the first target nanoparticle with the first target biomolecule (Au-streptavidin conjugate is exposed to biotinylated surface, col. 3, lines 19-21); and forming a first target complex on the first conductive substrate, wherein the first target complex includes the first target biomolecule and the first target nanoparticle (biotin binds to streptavidin, which binds the

biomolecule to the Au particle, col. 3, lines 15-16). Natan further teaches applying a voltage to the first conductive support to form a first detector complex (col. 21, lines 14-16) and contacting the first conductive substrate to a foreign conductive substrate to cause reduction of the first detector nanoparticles onto the first target nanoparticle (electrodes applied to foreign Pt gauze electrode which are removed after electrochemical deposition, col. 21, lines 11-19).

Regarding claims 4 and 5, Natan teaches the first target nanoparticle including a gold nanoparticle (col. 3, lines 19-21) and the first detector nanoparticle including a silver nanoparticle (col. 9, lines 62-67; col. 21, lines 3-7).

With respect to claims 8 and 9, Natan teaches the method for determining the presence of biomolecules using a SERS system further comprising a first marker molecule attached to the first target nanoparticle (cytochemical marker attached to first target nanoparticle, Au; col. 12, line 66-col. 13, line 2) or the first target biomolecule (cytochemical marker is indirectly attached to first target nanoparticle which is attached to first target biomolecule; col. 12, line 66-col. 13, line 2).

Conclusion

4. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Yu whose telephone number is (571) 272-2933. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melanie Yu
Patent Examiner
Art Unit 1641

LONG V. LE
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03/04/05